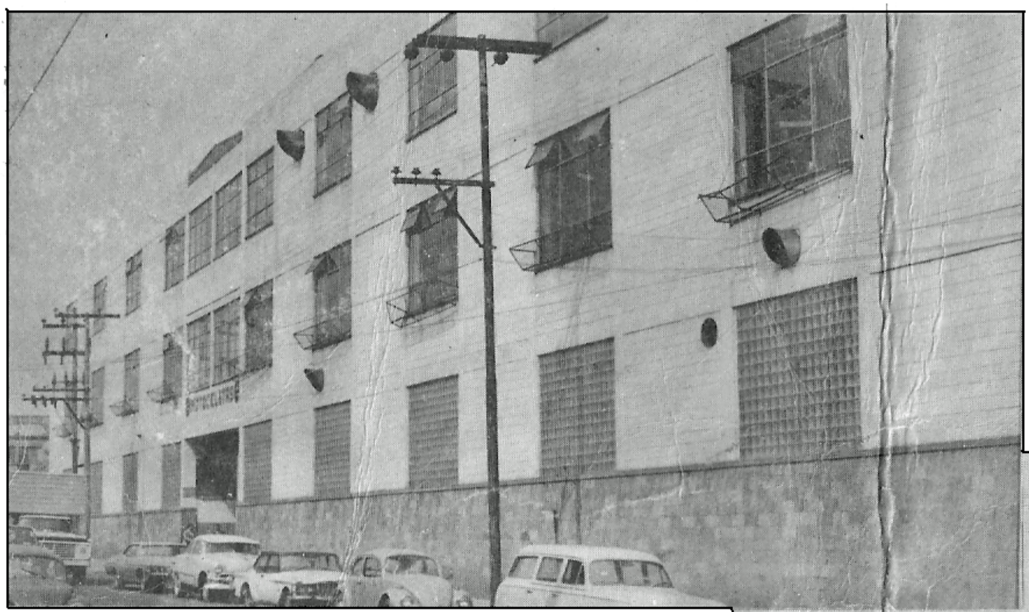
# 49 c.c. and 60 c.c. CARABELA MOTOMATIC

(models moped and w/kick starter)

# OWNER'S MANUAL



FABRICA DE MOTOCICLETAS CARABELA

ACER-MEX, S.A.

IMPRESO EN MEXICO

*BEFORE YOU BEGIN TO USE YOUR MACHINE, YOU NEED TO READ THIS MANUAL VERY CAREFULLY IN ORDER TO PROVIDE YOUR CARABELA MOTORCYCLE WITH THE PROPER MAINTENANCE.*

*ACER-MEX, S. A.*

*THE CARABELA MOTORCYCLES ARE PRODUCT OF AN EXPANDING MEXICAN MOTORCYCLE INDUSTRY, WHICH IS USING THE LATEST TECHNIQUES OF FABRICATION IN THE WORLD.*

*JUST AS YOU ARE, THOUSANDS OF PARTICULAR PEOPLE ARE SELECTING A CARABELA MOTOMATIC AS THEIR NEW VEHICLE FOR TRANSPORTATION.*

*The time that you invest in reading this manual, will be essential for trouble-free operation and optimum performance.*

*THANK YOU VERY MUCH*
*ACER-MEX, S. A.*

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# WARRANTY

*Our CARABELA motomatics have a 90 days warranty period if any component of our engines is founded with factory defect.*

*The repair or replacement of defective parts under this warranty will be made without charge for parts or labor.*

*This warranty do not cover the following items: tires, tubes and electric components.*

*We do not recognize any claim for bad use or abuse of the motorcycle.*

*To qualify any warranty, the dealer must agree that the failure was factory defect.*

# YOUR CARABELA MOTORIZED BICYCLE (MOPED) WARRANTY

RECORD THE FOLLOWING INFORMATION FOR FUTURE REFERENCE

Purchase date ______________________________

Model ______________________________

Engine No. ______________________________

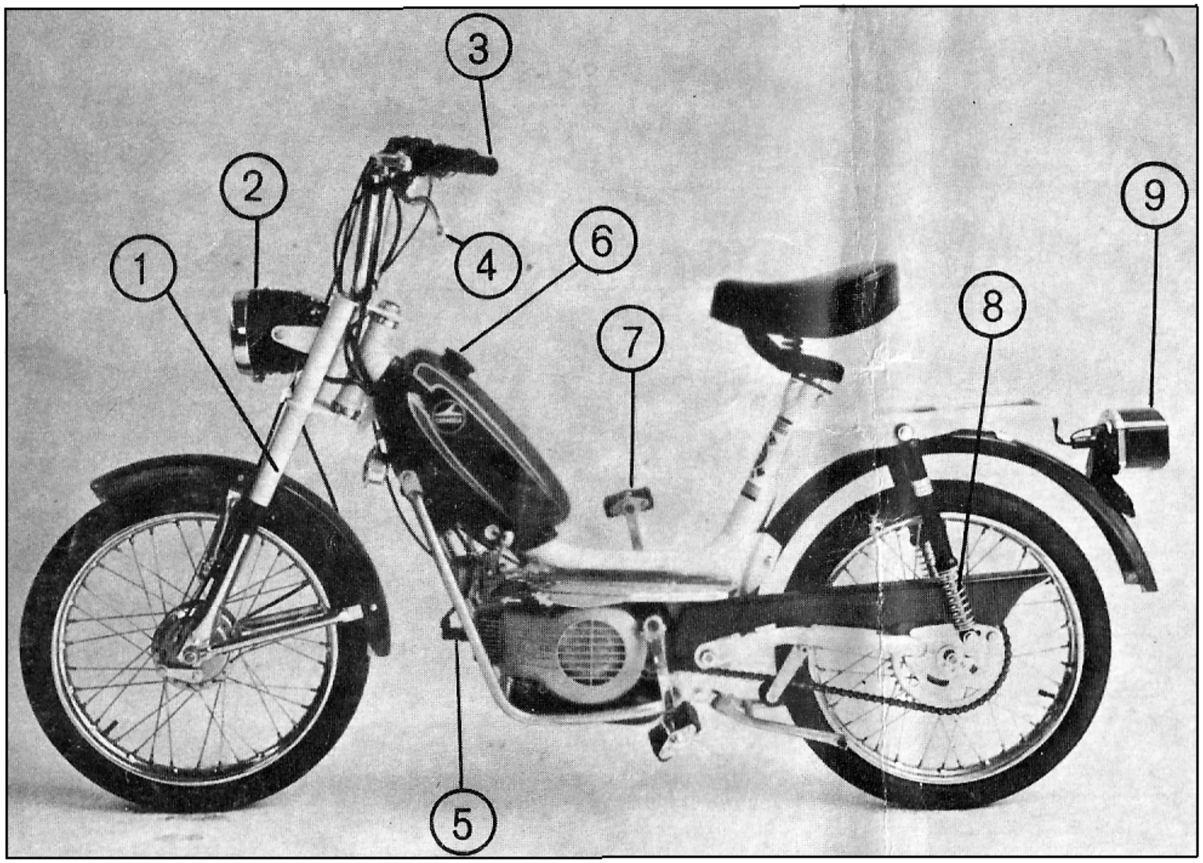
Frame No. ______________________________

Dealer name ______________________________

Adress ______________________________

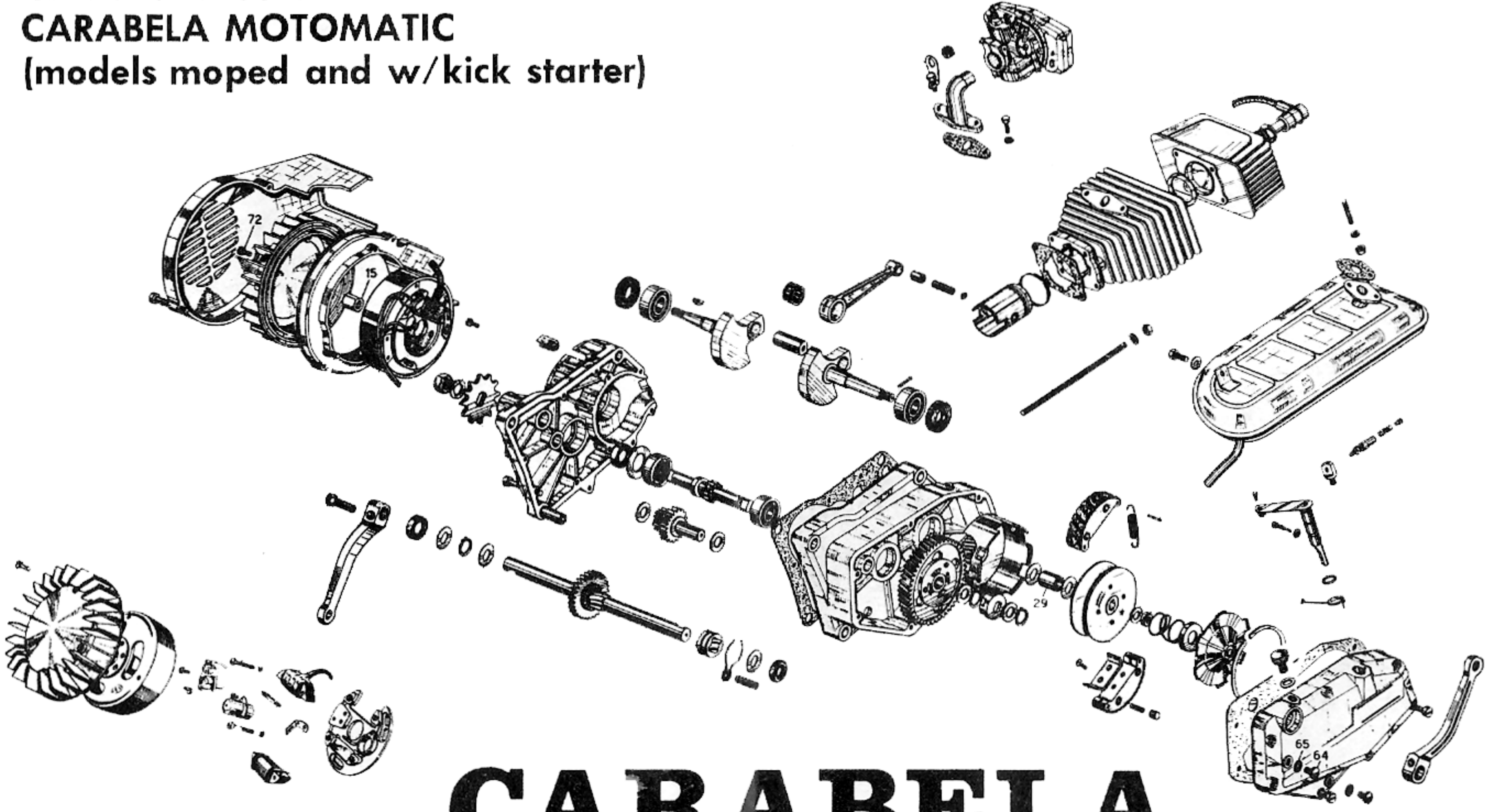
Location ______________________________

Dealer Signature ______________________________



1.- Front suspension
2.- Headlamp
3.- Throttle grip
4.- Starter clutch lever
5.- Spark plug cap
6.- Gas cap
7.- Motion pedals
8.- Shock absorbers
9.- Tail lamp

**MOTOMATIC 49 c.c. and 60 c.c. moped model.**
**49 c.c. and 60 c.c.**
**CARABELA MOTOMATIC**
**(models moped and w/kick starter)**



**CARABELA**

## FOREWORD

**CARABELA** motorcycles are a product of a flourishing Mexican Industry, made with the most advanced manufacturing techniques in the world.

Like you, thousands of friends have preferred **CARABELA** over other domestic and foreign brands; we feel proud of this, and wish to express to you our thanks for such a distinction. We are sure that you will find in the model of your choice each and every one of the features you are looking for in a motorcycle.

This pamphlet does not hope to turn its users into a mechanic or teach them to ride; both are the results of experience. We simply offer a comprehensive guide which will be useful to the owner of a Moto Matic in finding any damage or defect in his vehicle, as well as pointing out to him the requirements necessary for conservation and maintenance, which, if followed carefully, will prolong the useful life of the motorcycle, achieving in this way maximum performance.

For any defect, adjusment, etc., which is not included in this pamphlet we recommend that you take your motorcycle to an authorized **CARABELA** service shop for a checkup, and there, expert mechanics will repair it, guaranteeing its performance.

## FIRST RUN

Even though the engine undergoes a test period after its assembly at the factory, this period will not be over until the motor has worked under the conditions for which it was designed, that is to say mounted on the motorcycle under proper load conditions.

The second test period is carried out by the user, for which reason it is necessary for it to be done under the conditions which we recommend as follows:

During the engine's first fifteen working hours, extra load should not be carried and the climbing of steep hills should not be attempted. During this period a single speed should not be held, but rather the speed should be constantly varied in order to prevent an overload or overheating of the engine.

During the next ten working hours, the speed may be progressively increased without reaching the maximum speed.

It must be kept in mind, that whether during the test periods or after them, the engine should NEVER be forced when it is cold, nor should it be heated by accelerating with the rear brake depressed, since this would cause damage to the automatic clutch.

The main idea to keep in mind is that, during this period, the engine should never be excessively forced or the motorcycle ridden at top speed.

After the first fifteen working hours or thirty days have passed, change the crankcase oil (figure No. 6) as well as after the next ten hours or every thirty days maximum.

## STARTING THE ENGINE

A) On the central stand (without displacement of the motorcycle).

B) On the ground (with displacement of the motorcycle).

1.- Open the gasoline valve by putting the lever in a vertical position.

2.- Move the fuel mixture enrichment lever down (located between the carburetor and its filter). This lever returns to its original position once the engine's normal heating has been achieved and the accelerator has been depressed.

3.- Start pedaling as for a bicycle.

4.- Depress the clutch lever (lower lever on the left side of the handlebar)

5.- Turn the accelerator control slightly (right handlebar grip).

Your Moto Matic is automatic and will start running with accelerator action only, the speed being controlled by turning the same.

**NOTE:** When the engine has been started on its central stand, it will be necessary to depress the rear brake lever (upper lever on the left side of the handlebar) before lowering the motorcycle from the stand.

## DAILY INSPECTION

The daily inspection is done to prevent unexpected risks, so it is a good idea for the rider to get used to doing it before using the motorcycle.

Below we state some of the points which sould be checked daily for the rider's safety.

1.- Check to see if the head and tail lights are in good working order.

2.- Check to see that the front and rear brakes work well. There should be between 3 and 4 mm. play at ends of levers.

3.- See if there is enough gas-oil mixture in the tank.

4.- Check to see if the horn is working.

5.- Check the working of the clutch, allowing between 0.3 and 0.4 mm. play at end of lever.

6.- Check the tire presure.
Front 24 Lbs.
Rear 26 Lbs.

## PERIODIC MAINTENANCE

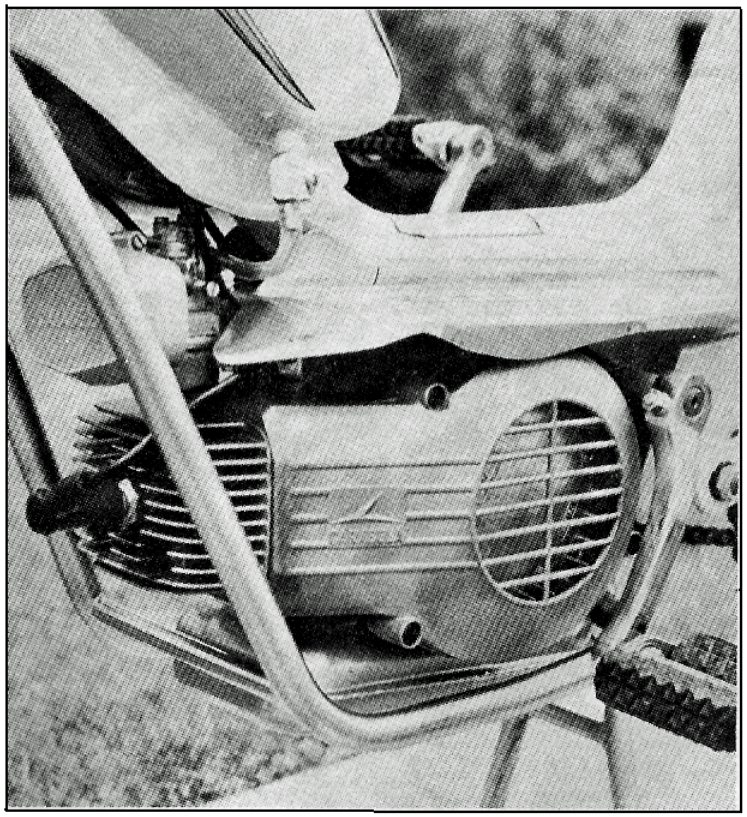
The life of your motorcycle will depend

greatly on the compliance with the periodic maintenance services.

Very few riders appreciate the benefits of these periodic maintenance services and follow them exactly. A great majority have them done only when the defects appear thus making a serious mistake, which usually causes greater expenses. It is precisely the object of the periodic maintenance to prevent damage before it happens. Do repairs which are of apparently no great importance, but which in time will turn out to be major and more costly.

For these and many other reasons, the rider should observe the strictest discipline in reference to complying with these maintenance services.

The following chart shows clearly and concisely how this maintenance should be carried out, as well as the time intervals between services.



## CONDENSED CHART OF MAINTENANCE PERIODS
## HOURS AND DAYS OF SERVICE

| Check | 15 hrs. | 25 hrs. | 45 days | 60 days | 90 days | 150 days | Comments |
|---|---|---|---|---|---|---|---|
| Crankcase Oil | Change | | | Check | Change | Check | |
| Carburetor | Adjust | --------- | Adjust | Adjust | Adjust | Adjust | Use regular gas |
| Air Filter | --------- | --------- | --------- | Clean | | | Wash in Gasoline |
| Gasoline Valve | Clean | --------- | --------- | Clean | | | Wash in Gasoline |
| Engine Cylinder | --------- | --------- | --------- | Decarbonize | Clean | Decarbonize | Remove carbon from exhaust port. |
| Cylinder Head | Tighten | --------- | Tighten | Decarbonize | | Decarbonize | Remove carbon from combustion chamber |
| Clutch | Adjust | --------- | Adjust | | | | 3 to 4 mm. play in the lever. |
| Magneto Alternator and Points | --------- | --------- | Check & Calibrate | Check and Calibrate | | | Point calib. must be 0.3 to 0.4 mm clean point |
| Engine Screws | Tighten | --------- | Tighten | | | | |
| Exhaust Pipe | --------- | --------- | --------- | Clean | --------- | Clean | Remove Carbon |
| Muffler | --------- | --------- | Clean | | | | Remove Carbon |
| Transm. Chain | Adjust & Lubricate | --------- | Adjust and Lubricate | | | | Use oil, not grease 15 to 20 mm. play |
| Brakes | Adjust | | | | | Clean | Use Sandpaper |
| Control Cables | --------- | --------- | Lubricate | | | | Use oil |
| Frame Screws | Tighten | --------- | Tighten | | | | |

# VARIOUS ADJUSTMENTS

**POINT ADJUSTMENT.-** These are located on the left side of the engine, inside the magneto flywheel, which is protected by a cover. Before adjusting the points, their condition should be checked. If they are burned or any of them show a perforation, they should be sanded with fine sandpaper or a file before being calibrated. If the perforation is very deep, or if the points have previously been sanded and are very worn, they should be replaced by new ones. When installing the new points, be sure to clean them very well. The points generally have a protective layer of grease, which should be removed once they are going to be used. When installing them on the support disk, be careful that the moveable point remains isolated, that is to say that neither the point nor the connections which reach it are grounded, since this would cause a short circuit preventing the current from reaching the spark plug.

Under these conditions we can now proceed to calibrate the space between points. For this operation we turn the propeller shaft to a position such that the upper part of the magneto flywheel cam operates against the shank of the moveable point. In this position, loosen the screw which holds the fixed point and move it in the direction necessary to obtain the correct calibration, which should be between 0.3 and 0.4 mm. Then tighten the screw which holds the fixed point and check the calibration again.

POINT
CALIBRATION

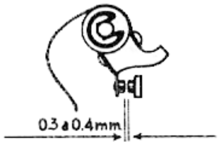


Fig. 1

SPARK PLUG
CALIBRATION

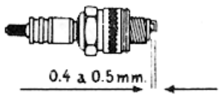
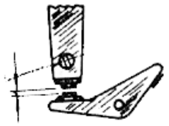


Fig. 2

1.- Firing anticipation

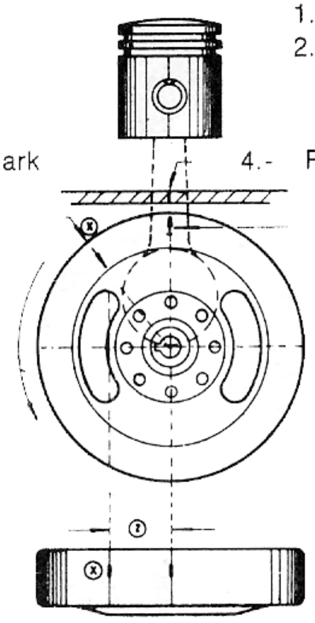
2.- (on the piston)

3.- POINT CALIBRATION



4.- Reference mark on crankcase

5.- Firing anticipation mark (on the flywheel)



6.- Mark on flywheel indicating the HPP (Highest piston position) when it corresponds with the mark on the crankcase

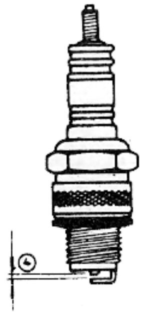
7.- Engine revolution

8.- NOTE: In relation to the mark on the flywheel indicating the HPP, the firing anticipation mark (X) should always be on the HPP mark in the direction of engine revolution.

9.- Distance on the surface of the flywheel (ARC) for the firing anticipation mark

10.- (When mark X is passed in front of the crankcase reference, the point should start to open.)

11.- SPARK PLUG CALIBRATION



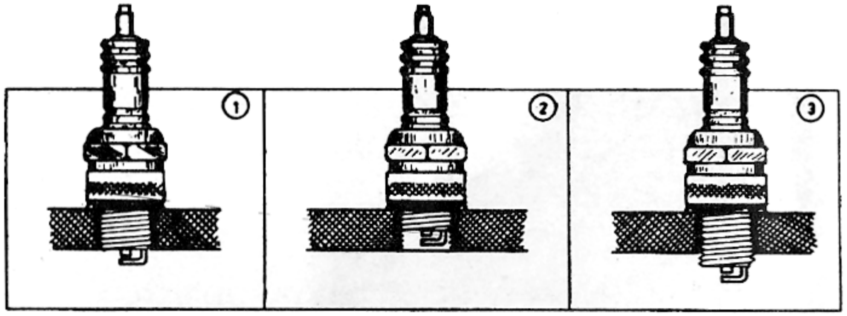


**Fig. 3**

**FIRING TIME ADJUSTMENT.-** In order to set the firing time of the engine, it is necessary to have previously calibrated the points. Once this requirement is met, the engine's firing time is adjusted by the following process:

On the lateral surface of the magneto flywheel there are two fine lines. In relation to the way the engine revolves (shown by an arrow on the flywheel), the first line corresponds to the firing time and the second one to upper neutral. To set the engine's firing time, make the first line coincide with the first line with the mark (zero) which is on the machined outside of the crankcase. When the flywheel is in this position, the points should be about to open, a condition we achieve by loosening the screws which hold the support disk to the crankcase and by moving the disk in the direction necessary to put the points in the desired position. That is when it is about to open. Be especially careful not to move the flywheel when loosening the screws, and if it moves, put it once more in the proper position before moving the disk. Once the time is set, tighten the disk screws, being careful not to move the disk. Check the firing time again. (See figure No. 7.)

## SPARK PLUG ADJUSTMENT
## VERY IMPORTANT

The spark plug is the device which by

means of the spark, the fuel ignites and gives the engine movement.

Because of the hostile environment in which it works (constant changes of revolutions, frequency of flying sparks, fuel with oil impurities, etc.), the same performance should not be expected from the spark plugs as they would give in an automobile. For these reasons, a periodic cleaning of the spark plugs is necessary, since the acumulation of cinder on their electrodes can prevent the jumping of the spark, stopping the engine immediately. For this reason we recommend that the rider always carry a replacement spark plug, even though most of the time it will be possible to clean off the cinder for the spark plug to be in working condition again.

Given the extremely important role of the spark plugs, it is vital to choose the exact spark plug suitable in thermic nature and size. This will depend on the type of work to which the motorcycle is submitted, the terrain where it is ridden, and the climate where it operates, but the size of the spark plug should be of the dimensions suitable to the cylinder head:

| | |
|---|---|
| Moto Matic | Champion L-85 |
| Calibration | 0.4 to 0.5 mm |

Since if a shorter spark plug is used (figure No. 3):

A) The volume of the combustion chamber increases, therefore the compression ratio goes down, causing the engine to lose power.

B) The spark plug spark jumps outside the point of the combustion chamber where firing is most efficient, thus increasing the possibility of failures, irregular running, and wasting of fuel.

C) The spark plug is supported by very few turns of screw thread, which may cause insufficient pressure (causing leaks) or damage to the screw thread of the cylinder head when tightening too much on very few turns of screw thread.

D) Cinder collects on the free part of the thread, which closes the threaded opening more and more, slowly isolating the spark plug spark. The cinder collected on the thread so hard that when the attempt is made to remove it or to insert a longer spark plug, the cylinder head may be damaged.

On the other hand, using a spark plug longer than necessary (Figure No. 3) may:

A) Hit the piston, breaking it or the spark plug.

B) When the spark nears the piston, the heat may melt it making a perforation. In either of these two cases the fragments resulting from the damage may cause great upsets if they fall into the crankcase or are trapped between the piston and the cylinder.

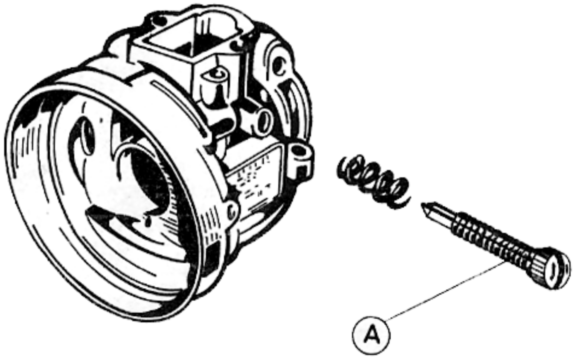
For this reason, be sure that the spark plug you use is of the exact measurements and the thermic nature recommended by the factory for your motorcycle.

If you prefer another brand of spark plugs, be careful that the type used is THE EXACT EQUIVALENT of Champion recommended. (Any auto parts shop can supply you with a chart of equivalents of all brands of spark plugs.)

## CARBURETOR ADJUSTMENT

The carburetor is a vitally important part, since it regulates the passage of fuel to the inside of the engine. The internal adjustment of the carburetor should be done by a mechanic. Below we give some suggestions for the external adjustment of the carburetor.

Slowly unscrew screw (a) to lower the engine revolutions as much as possible. (Figure No. 4).



## CLUTCH ADJUSTMENT

As we have previously mentioned, the clutch lever should have a play of from 3 to 4 mm, which we control by means of a tightening screw which is located at the end of the clutch, screwed to a support on the crankcase. If the play is not within the limits of the tightener, we can correct it by means of the fuel mixture enricher, which is at the end of the same cable.

## BRAKE ADJUSTMENT

The front and rear brakes are adjusted in the same way as that described for the clutch, except that in this case the tightening screw is located on the brake drum cover. The play of the control levers should be between 3 and 4 mm.

## CHAIN ADJUSTMENT

The chain play should be measured at the middle of the chain, as shown in Figure No. 5. This tension should be made with the weight of a person on the motorcycle. The play should be approximately between 15 and 20 mm. In the same figure the position in which the chain latch should be in relation to the chain's revolution is shown.

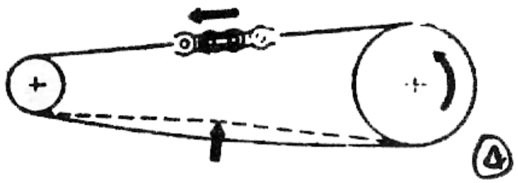
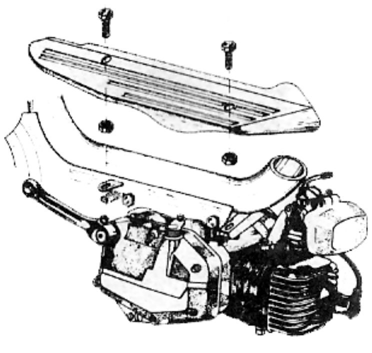


Fig. 5



**Oil tank Cap**

**Oil level Screw**

For the Moto chart, periodically lubricate the reducer (groups of intermediate pinions of the chains).

## LUBRICATION

Your **CARABELA** motorcycle is equipped with a two-stroke engine. This type of engine is designed to give you the best combination of great performance and maximum life. To enjoy these advantages, it is only necessary to take a little care with its operation, above all with the fuel (gas-oil mixture), a vital area for your motorcycle.

## IT IS NOT ENOUGH FOR THE GASOLINE IN THE TANK TO HAVE THE PROPER PROPORTION OF OIL

In order for the oil to carry out its lubricating function, it should reach the PISTON-MAIN DRIVING ROD-CRANKSHAFT ensemble along with the gasoline. For it to reach these mechanisms, the oil should be COMPLETELY MIXED with the gasoline. This mixture is achieved only by preparing it before filling the fuel tank.

It is, with its logical consequences, very common to put oil into the motorcycle's tank and then add the gasoline according to the proportion specified, considering that the pressure of the stream of gasoline or a shake of the motorcycle is enough to perfectly prepare the mixture the motorcycle needs for its operation. . . THIS IS COMPLETELY FALSE.

If the oil remains separated from the gasoline, one of two things may happen:

1st.- The oil passes through the gasoline valve practically by itself. (This makes starting the motorcycle difficult, since it is very difficult for the oil alone to ignite from the spark plug spark.)

2nd.- The gasoline passes through the valve practically by itself. (The engine starts easily, but its mechanisms: ring, bolt, piston, main driving rod, crankpin, and crankshaft are operating without any, or insufficient lubrication, which causes wear and overheating with all the consequences this brings with it.)

Never, HOWEVER SHORT THE RUN MAY BE, should the engine be run without oil in the gasoline or with the mixture poorly prepared. Even though there has been apparently no damage because of the short length of time of operation without oil, marks imperceptible to the naked eye have been formed on the friction points. These marks will gradually increase and cause, damage later, even if there is enough lubricant at the moment the damage occurs. We recommend that the fuel mixture be prepared with ESSO 2-T oil, which, because of its great affinity with gasoline and because of its low residual level when burned, meets the requirements of a 2 - stroke engine with greatest efficiency.

We do not mean by this that you will receive good performance from your engine only with 2-T, since any SAE No. 30 oil may be used for the mixture. It will only be necessary to clean off the cinder more often from the sparkplug. Avoid the use of regenerated or multiple grade (10-30, 20-40, etc.) oils. Since lubrication is effected by the admission of fuel to the engine, avoid going down long hills with the accelerator completely closed. This lubrication should not be confused with that needed by the crankcase. This requires periodic oil changes and the maintenance of the correct oil level. Every lack or excess of oil means breakage or overheating. CHECK THE INDICATED LEVEL FREQUENTLY:

For **CARABELA** Moto Matic motorcycles use SAE 20 automotive oil.

## TRANSMISSION CHAIN

For the lubrication of this extremely important part, use frequently (depending on the terrain and climate in which you ride) the special oil sold by the authorized **CARABELA** dealer or service shop. Avoid lubricating the chain with grease since when it comes in contact with dust or dirt it will act as an abrasive and will wear the chain quickly.

## GENERAL LUBRICATION

Periodically lubricate the control cables of the ladle carriers with heavy oil (the same as for the chains may be used). Be sure that when the maintenance service is done on your engine, grease is put in all the grease cups of your motorcycle and on the wheel ball bearings.

WHEN WASHING YOUR MOTORCYCLE, AVOID THE USE OF DETERGENTS, SINCE THESE SUBSTANCES DILUTE THE PROTECTIVE GREASE OF THE VARIOUS MECHANISMS THEY REACH. (Chains, wheels, axels, etc.) In case you do use detergents, proceed with a complete and inmediate relubrication.

## FUEL MIXTURE

Use a fuel mixture with a proportion of 18 lit. of gasoline to 1 lit. of oil (2.1/4 lit. of gasoline per 125 cubic cm of SAE 30 oil). WHEN YOU BUY YOUR **CARABELA** MOTORCYCLE, YOU WILL NEED 2 CHECK-UP SERVICES, CHECK-UP ADJUSTMENT BY THE DEALER WHO SOLD YOU THE MOTORCYCLE OR AT THE SERVICE SHOP WHICH HE SUGGESTS.

During the first two months of riding, you will need the following services on your motorcycle at an authorized **CARABELA** service shop:

Carburetor Cleaning •
Spark Plug Cleaning •
Decarbonization •
Brake adjustment •
Clutch adjustment •
Chain adjustment •
Body adjustment •
Oil change •
General lubrication •

## CHART OF DEFECTS AND THEIR POSSIBLE SOLUTION

| ORIGIN | | | |
|---|---|---|---|
| IT IS NOTED THAT... | THE DEFECT MAY BE... | CAUSED BY.. | SOLUTION |
| THE ENGINE DOES NOT START, IT STOPS, IT COUGHS, THERE ARE EXPLOSIONS, OR IT DISCHARGES LARGE AMOUNTS OF SMOKE THROUGH THE EXHAUST PIPE. | LACK OF FUEL | AN OBSTRUCTED VALVE | WASH |
| | | CLOSED VALVE | OPEN |
| | | LOW FUEL LEVEL IN TANK | FILL |
| | | EMPTY TANK | FILL |
| | | OBSTRUCTED CARBURETOR FILTER | WASH |
| | | POOR CARBURETION | CARBURETOR |
| | EXCESS OF FUEL<br>(FLOODED ENGINE) | LEAVING THE PASSAGE VALVE OPEN WHEN ENGINE IS NOT WORKING | CLOSE PASSAGE VALVE, TAKE OUT THE SPARK PLUG, AND WHILE PULLING AWAY THE CABLE, MOVE THE PEDALS AND THE CLUTCH LEVER A FEW SECONDS. PLACE THE PARTS IN THEIR ORIGINAL POSITION AND TRY STARTING THE ENGINE AGAIN. |
| | EXCESS OFF OIL IN | IMPROPER MIXING OF FUEL | CHANGE THE MIXTURE |
| | | PUTTING MORE OIL IN THE MIXTURE THAN CALLED FOR | CHANGE THE MIXTURE |
| | CONTAMINATED FUEL | GASOLINE WITH WATER OR IMPURITIES | WASH THE TANK WITH GASOLINE AND CHANGE THE MIXTURE. |

| ORIGIN | ELECTRICAL CURRENT | | |
|---|---|---|---|
| IT IS NOTED THAT... | THE DEFECT MAY BE... | CAUSED BY... | SOLUTION |
| THE ENGINE DOES NOT START, IT STOPS, IT COUGHS, THERE ARE EXPLOSIONS, OR IT DISCHARGES LARGE AMOUNTS OF SMOKE THROUGH THE EXHAUST PIPE. | SPARK PLUG DEFECTS | CINDER BETWEEN THE ELECTRODES (SPARK PLUG) | CLEAN AND CALIBRATE |
| | | ENGINE FAILURE AT HIGH RPM'S | CHANGE |
| | INTERRUPTIONS IN THE CURRENT OR TOTAL LACK OF CURRENT | FALSE CONTACT IN THE SPARK PLUG CAP | |
| | | COIL IN POOR CONDITION | CHANGE |
| | | LOOSE CABLES | CHECK AND TIGHTEN |
| | | DISCONNECTED CABLES | CHECK AND CONNECT |
| | | CABLES IN SHORT CIRCUIT | CHECK AND ISOLATE |
| | | DIRTY POINTS | CLEAN AND CALIBRATE |

Carabela
M.R.

**ACER-MEX, S.A.**

AV. 1 Nº 4 NAUCALPAN EDO. DE MEXICO